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AUTHOR Field, Tiffany
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ABSTRACT

The present study investigated whether infants of mothers who were depressed postpartum would behave like infants of non-depressed mothers who simulated depression. A total of 24 mothers and their 3-month-old infants were videotaped during face-to-face interactions. All mothers were given the Beck Depression Inventory (BDI) and the State-Trait Anxiety Inventory. Mothers receiving scores of 16 or above on the BDI were recruited for the depressed group; non-depressed mothers with BDI scores of 4 or less were selected from the random sample to match depressed subjects on age, parity, socioeconomic status, and education. Interactions were recorded in which mothers were instructed to behave spontaneously, to simulate depression, and to again behave naturally. Recordings for each type of behavior were 3 minutes long. Infant behaviors coded were frequency of vocalizations, positive and negative facial expressions, and duration of looking away, protesting, and looking wary. Tapes were separately coded for similar behaviors of the mother. Additionally recorded were infants' and mothers' baseline and interaction heart rates and infants' activity levels. Results suggest that the infant is able to detect the affective quality of the mother's displays and appropriately modify affective displays in response to them; depression in the mother may be transmitted to her offspring during their very early interactions. (RH)

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Early interactions between infants and their postpartum depressed mothers

Tiffany Field

Running head: Infants of depressed mothers

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Early face-to-face play interactions in which mothers have been instructed to "look depressed" result in disorganized, distressed behavior on the part of the infant (Cohn & Tronick, 1983). During this manipulation the infants more frequently looked wary, gaze averted, protested, and attempted to elicit responses from the mother, much like the infant interacting with a still-face mother attempts to reinstate their normal interaction (Fogel, Diamond, Langhorst & Demos, 1982; Stoller & Field, 1982; Trevarthen, 1977; Tronick, Als, Adamson, Wise & Brazelton, 1978). The infants' distressed behavior continued even after the mothers resumed their normal behavior. Although the Cohn and Tronick (1983) study was intended to be a simulation of interactions between depressed mothers and infants, it is possible that infants of naturally depressed mothers may be accustomed to depressed behavior and thus may not act distressed when she is invited to "look depressed". In the present study we investigated whether infants of mothers who are depressed postpartum would behave like infants of non-depressed mothers who were invited to "look depressed".

Twenty-four mothers (12 depressed, 12 non-depressed) and their infants were videotaped during face-to-face interactions when the infants were three-months-old. The "depressed" mothers had been referred to us by the obstetric unit social worker because they looked depressed during the lying-in period. This group of mothers and a randomly selected group of mothers delivering on the same unit were invited to participate in the study when their infants were three-months-old. All mothers were given the Beck Depression

Inventory (Beck, Ward, Mendelson, Mock & Erbaugh, 1961) and the State-Trait Anxiety Inventory (Spielberger, Gorsuch & Lushene, 1970). Only those mothers who received scores of 16 or above on the Beck Depression Inventory (BDI) were recruited for the "depressed" mothers' group. The group of non-depressed mothers (scores $\leq$ 4 on BDI) were then selected from the random sample to match the "depressed" mothers on age (M=27.2), parity (M=2.3), socioeconomic status (SES) level (lower SES) and education (M=11.8 years).

Face-to-face interactions were then videotaped with the infants placed in an infant seat on a table approximately 18 inches from the face of the mother who was seated at the table. Two videocameras and a split screen generator enabled simultaneous monitoring of the mothers' and the infants' facial behaviors. The infants' and mothers' baseline and interaction heartrate was recorded via Narco telemetry on a stereo cassette audiotape recorder (Field, 1981). In addition, an actometer (Timex motion recorder) was attached to the infant for a measure of activity level (Bell, 1968). Three face-to-face play interactions of 3-minutes duration were then recorded. For the first interaction, a spontaneous interaction, the mother was simply asked to play with her infant as she would if she were at home. This interaction was followed by one in which the mother was asked to "look depressed". The mothers were asked to imagine how they felt on days when they felt tired or depressed and felt unable to play effectively with their infant. They were instructed to direct gaze toward their infant; speak in a flat uninteresting monotone; keep their faces relatively expressionless; and minimize body movement and touch contact with their infant. For the third interaction, the "reunion", the mother was asked again

to behave naturally, as if she were at home playing with the infant.

The videotapes were then coded by research assistants who were naive to the hypotheses of the study. Using an event recorder the research assistants coded the following behaviors from the videotapes: frequency of vocalizations, positive facial expressions and negative facial expressions and duration of looking away, protesting, and looking wary (Cohn & Tronick, 1983). In addition, because variation in maternal behavior might be expected to affect the infant's behavior, the tapes were separately coded for the following behaviors of the mother: frequency of vocalizations, positive facial expressions and negative facial expressions and duration of looking at the infant and tactile/kinesthetic stimulatiton. Interobserver reliabilities were assessed by the simultaneous coding of one-half of the videotapes. Based on Cohen's Kappa (Bartko & Carpenter, 1976), a chance-corrected statistic, the reliabilities ranged between .83 and .97 (M=.88).

A 2 X 3 repeated measures analysis of variance was conducted with group and sex as the between-groups measures and the interaction situation as the repeated measure. Post-hoc comparisons were made by Bonferroni t tests (Myers, 1972). As can be seen in Table 1, the analyses revealed a number of main effects as follows: 1) The infants of non-depressed mothers showed more frequent positive facial expressions, less frequent negative facial expressions, more frequent vocalizations, protesting, and looking wary. In addition, activity level and heartrate values were higher for the infants of non-depressed mothers. 2) The non-depressed mothers showed more frequent positive facial expressions, less frequent negative facial expressions, more frequent vocalizations

and greater amounts of time spent looking at the infant and providing tactile/kinesthetic stimulation. In addition, the heartrate of the non-depressed mothers was greater than that of the depressed mothers. The only significant repeated measures effect revealed that less time was spent providing tactile/kinesthetic stimulation during the depressed situation for both groups of mothers. Group by repeated measures interaction effects revealed the following: 1. The infants of non-depressed mothers versus those of depressed mothers showed fewer positive facial expressions, more frequent negative facial expressions, less frequent vocalizations, more protest behavior and more looking wary during the depressed and reunion situations versus the spontaneous interactions. In addition, the infants of non-depressed mothers showed higher activity levels and higher heartrate during the depressed and reunion versus the spontaneous interaction situations. 2. The non-depressed versus depressed mothers showed less frequent positive facial expressions, more frequent negative facial expressions and less frequent vocalizations during the depressed versus the spontaneous and reunion interaction situations. The non-depressed mothers' heartrate was also higher during the depressed versus the spontaneous and reunion situations.

The data on the non-depressed mothers and their infants support those of Cohn and Tronick (1983), suggesting that the infant is able to detect the affective quality of the mother's displays and appropriately modify his or her own affective displays in response to them. Much of the infants' behavior appears to be an attempt to reinstate their normal interaction; failing this, their distressed behavior (looking away, looking wary, and protesting) carries over

into their subsequent "reunion" interaction. That this may be an anxiety-provoking situation for both the non-depressed mothers and their infants is suggested by the elevated activity level and corresponding increase in heartrate in the infants and the elevated heartrate of the mothers during the depressed interaction situation. In contrast, the depressed mothers' behaviors did not appear to change across the three situations, except that the mothers provided less frequent tactile/kinsesthetic stimulation, as they had been instructed, during the depressed interaction situation. Paralleling the unchanging behavior of the depressed mothers was the unchanging behavior of their infants. These data confirm our speculation that infants of naturally depressed mothers may be accustomed to their mothers' depressed behavior and thus may not act distressed when she is invited to "look depressed". The lower heartrate of the depressed mothers and their infants may be mediated by their lower activity levels, as in somatic coupling of activity and heartrate (Obrist, 1981). Lower heartrate has been associated with situations of helplessness and passive coping (Obrist, Lawler, Howard, Smithson, Martin & Manning, 1974), and has been attributed to decreased sympathetic adrenergic activity or increased parasympathetic activitation/vagal tone (McCabe & Schneiderman, 1982).

These data are reminiscent of infant primate studies in which infants do or do not have control in a stressful situation (Reite, Short, Seiler & Pauley, 1981). During brief periods of stress primate infants typically show agitated behavior and physiological arousal. During more prolonged stressful situations, the infants' activity and physiology is depressed. In the former situation, the

primate infant has been said to be actively coping and in the latter passively coping. The behavior of the infants of depressed mothers versus that of non-depressed mothers in this study suggests a passive/active coping behavior contrast. The behavior of the infants of depressed mothers appears to "mirror" the behavior of their mothers, and suggests that by experiencing frequent lack of control during early interactions, they have developed a passive coping, depressed style of interacting. Although very little is known about the genetic transmission of depression in families, these data independently suggest that depression or depressed affect may emerge in very young infants as a function of their early interactions with postpartum depressed mothers. Whether the depressed affect of these infants derives from their "mirroring" their mothers' behaviors or simply results from the minimal stimulation provided by the mothers is an empirical question. Nonetheless, these data suggest that depression in the mother may be transmitted to her offspring during their very early interactions.

References

Bartko, J.J. & Carpenter, W.T., On the methods and theory of reliability. The Journal of Nervous and Mental Disease, 1976, 163, 307-317.

Beck, A.F., Ward, C.H., Mendelson, M., Mock, J. and Erbaugh, J. An inventory for measuring depression. Archives of General Psychiatry, 1969, 9, 295-302.

Bell, R.O. Adaptation of small wristwatches for mechanical recording of activities in infants and children. Journal Experimental Child Psychology, 1968, 6, 302-305

Cohn, J.F. & Tronick, E.Z. Three-month-old infants' reaction to simulated maternal depression. Child Development, 1983, 54, 185-193.

Field, T. Infant gaze aversion and heart rate during face-to-face interactions. Infant behavior and development, 1981, 4, 307-315.

Fogel, A., Diamond, G.R., Langhorst, B.H. & Demas, V. Affective and cognitive aspects of the two-month old's participation in face-to-face interaction with its mother. Social interchange in infancy: Affect, cognition and communication. Baltimore: University Park Press, 1982.

McCabe, P. & Schneiderman, N. Psychophysiological reactions to stress. In N. Schneiderman & J. Tapp (Eds.) Behavioral Medicine: The Biopsychosocial Approach. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1983.

Myers, J.L. Fundamentals of experimental design. Boston: Allyn & Bacon, 1972.

Obrist, P.A. Cardiovascular psychophysiology, New York: Plenum, 1981.

Obrist, P.A., Lawler, J.E., Howard, J.L., Smithson, K.W., Martin, P.L. & Manning, J. Sympathetic influences on cardiac rate and contractility during acute stress in humans. Psychophysiology, 1974, 11, 405-427.

Reite, M., Short, R., Seiler, C. & Pauley, J.D. Attachment, loss and depression. J. Child Psychol. Psychiat., 1981, 22, 141-169.

Spielberger, C.D., Goursuch, R.L. & Lushene, R.E. The State-Trait Anxiety Inventory. Palo Alto, California, 1970, Consulting Psychologists Press.

Stoller, S. & Field, T. Alteration of mother and infant behavior and heart rate during a still-face perturbation of face-to-face interactions. In T. Field & A.Fogel (Eds.) Emotion and early interactions. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1982.

Trevarthen, C. Descriptive analysis of infant communicative behavior. In H.R. Schaffer (Ed.), Studies of mother-infant interaction. London: Academic Press, 1977.

Tronick, E., Als, H., Adamson, L., Wise, S. & Brazelton, T.B. The infants' response to entrapment between contradictory messages in face-to-face interaction. Journal American Academy of Child Psychiatry, 1978, 17, 1-13.

Table 1. Infant and Mother Behaviors during spontaneous, "depressed" and "reunion" interactions (Mean (M), repeated measures (R) and Interaction (I) effects).

	Non-depressed			Depressed			Effect and
Infant Behaviors	Spontaneous	Depressed	Reunion	Spontaneous	Depressed	Reunion	p level
Positive facial expressions (frequency)	8.5	4.0	4.5	3.0	2.0	2.0	M^1I^1
Negative facial expressions (frequency)	1.5	8.0	6.5	5.5	5.0	4.5	I^1
Vocalizations (frequency)	7.0	3.0	3.5	2.0	1.5	1.5	M^2I^1
Looking Away (% time)	21	48	39	38	32	33	I^2
Protesting (% time)	5	42	37	15	16	17	M^2I^4
Looking wary (% time)	7	36	31	11	14	13	M^3I^4
Activity	17	26	23	9	11	12	M^2I^1
Heart rate	148	159	154	140	142	145	M^1I^1
Mother Behaviors							
Positive facial expressions (frequency)	21.5	2.0	16.5	5.0	4.0	3.5	M^3I^4
Negative facial expressions (frequency)	2.5	8.0	3.0	9.0	11.5	10.5	M^1I^1
Vocalizations (frequency)	53	21	48	22	26	27	M^2I^2
Looking at infant (% time)	93	89	95	58	65	62	M^3
Tactile/Kinesthetic stimulation (% time)	39	11	33	21	11	18	M^2R^2
Heart rate	79	87	81	71	73	74	M^1I^1

[1] $p<.05$

[2] $p<.01$

[3] $p<.005$

[4] $p<.001$